

Call for Fire Trainer

by Sergeant Charles L. Tremel Jr.

It seems as though call for fire is one of the most important, yet perishable skills, that a 19D cavalry scout possesses. For scouts serving in the Reserve Component, coordination of platoons, drill schedules, training sites, and ammunition, make it especially difficult to maintain proficiency in this task. Nothing is more frustrating than preparing for a live fire or training set, fire observation (TSFO) and have training cancelled at the last minute. This article describes a trainer that is not only low cost and portable, it also allows variety and flexibility in training.

Preparation

You will need the items listed below:

- 1 armored fighting vehicle model. I recommend either 1/35 or 1/72(1/80) scale. These scales are well detailed, inexpensive, and easily purchased on the civilian market. 1/35-scale models can also be requested through the training aids support center.
- 550-cord or twine. The length needed depends on the scale of the model be-

ing used. 150 feet of 550-cord is needed for 1/35 scale.

- 10 to 20 marker flags. These flags are used to mark underground lines. They can be purchased at a local hardware store and can either be stuck straight into the ground or bent at the bottom to form a foot.
- 2 to 3 sets of M22 binoculars. These will remain at the observation post (OP) for the instructor and observer.
- 2 manpack or civilian FRS radios. One will stay at the OP and one will go downrange with the assistant instructor.
- Assistant instructor. The assistant instructor should have a thorough knowledge of call for fire.
- Optional items. A map of the area, which should be 1:50,000 scale; an easily identifiable item to be used in shift-from-known-point missions.

Now that everything has been gathered, let's begin. Cut the 550-cord into two

equal lengths and tie them together with a knot at their midpoints. Each of the four strands must be marked at 100 *scale* meter intervals, working out from the center. In 1/35 scale, 100 scale meters equal 2.9 actual meters. Measure this length and tie a knot. Repeat this process three more times until 400 scale meters are reached. After completing the first strand, repeat the process on the remaining three strands. Trim any excess from the ends of the strands. When the strands are laid out on the ground they will form a large crosshair. Each arm of the crosshair will be 400 scale meters long with a knot designating each 100 scale meter increment, as shown in Figure 1.

Setup

The time-consuming part is done. The instructor now needs to choose a large open area as the training site where he will establish his OP. Once this area is selected, spread out the crosshair in front of the OP. Place the model at the center of the crosshair and determine the scale



range from the OP to the model using the width-over-range-equals-mils (WORM) method. This is an important step. One goal of this trainer is to teach field expedient range estimation, in the event you do not have laser range finders. Knowing the range also allows the instructor to ensure that the observer is using the proper observer target (OT) factor, which is the distance from the observer to the target expressed in thousands to the nearest hundred (6300 meters = 6.3). At this point, a known point can be added and ranged to allow for shift-from-a-known-point missions.

The instructor must now decide if a map will be used and, if so, what kind will be used. The first option is to use the actual 1:50,000-scale map of the area. If this map is used, everyone must realize that the terrain on the map will not match the terrain seen through binoculars. The second option is to draw a scale map of the terrain that is seen through binoculars. Using this option severely limits the portability of the trainer. The third option is to eliminate the map and invent any grid coordinates that are called over the radio.

The first option, if the map is available, is a way to test the observer's map-reading skills. He first determines the position of his OP on the map. Once distance and direction to the target are determined, they are plotted as "values" on the map to determine the simulated grid coordinates of the target.

Training

Now the observer can begin training. The assistant instructor goes downrange with a radio and the marking flags. He will become both the fire direction center and the guns.

The instructor begins to walk through a grid mission. The observer locates the position of the OP on the map. He then locates and identifies the target and gives the instructor a blue one (spot) report. The observer then uses the compass to determine the direction and the WORM method to determine the distance to the target. These values are plotted on the map to determine the target's grid coordinates. Remember, the values plotted to the target represent the point where an actual target would be. It is not the position of the model on the ground. This can be confusing.

The observer radios the fire mission, using the proper format, to the assistant instructor downrange, while the instructor

listens and verifies the information. Once he receives the mission, the assistant instructor radios the "splash" of the first round to the observer while planting the first marking flag. We initially marked the rounds far off target to force the observer to call corrections. The observer begins to correct from this initial impact point. The assistant instructor uses the flags to mark the impact of each correction. For instance, to the assistant instructor, "left 200, drop 100" translates to, "left 2 knots, drop 1 knot, and plant the flag." The instructor uses his binoculars to ensure that the corrections are accurate. Once the 100m bracket is broken, the observer makes the final correction, calls a fire for effect, and ends the mission.

When the instructor is satisfied with the knowledge of grid missions, polar-plot and shift-from-a-known-point missions can be practiced. The instructor can use these missions to teach a large variety of subjects, including methods for determining direction and estimating distance, proper use of the OT factor, types and proper use of bracketing techniques, the effect of angle T on corrections, and how to use hand measurements to determine angular deviation. This process continues until all observers have been trained to the instructor's satisfaction.

Although I have not tried this adaptation yet, it is possible to use the trainer to simulate night fire with one-gun illumination. Micro chemical lights can be taped to the knots on the 550-cord to mark the 100 scale meter intervals. If properly executed, the chemical lights will remain invisible to the observer, but will allow the assistant instructor to use the intervals to properly mark corrections. A flashlight can be used to simulate the illumination round. "Burn time" depends on the type of weapon being simulated. The instructor can train corrections for height of burst and adjust the illumination round to within 200 meters of the target.

This call-for-fire trainer is very simple to use, inexpensive to manufacture, and is effective. My platoon used a 1/35-scale trainer, but it is very large and most easily used outdoors. We have also used a 1/72-scale trainer on the drill floor. The

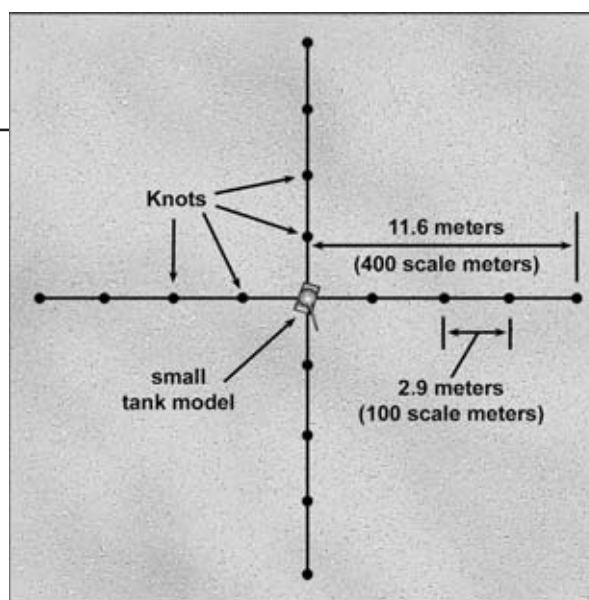


Figure 1

two can be used together to engage multiple targets. The trainer does have a few disadvantages. The observer cannot determine direction by scaling from a map. Estimating distance is limited to the WORM method. Flash-to-bang time, laser ranging, and map estimation cannot be used. Even with these few drawbacks, the trainer works.

Each platoon can determine what standards to use during evaluation. The instructor can test on a variety of tasks, including call for fire, estimate range, use of reports, radio telephone operating procedures, map and compass skills, and armored fighting vehicle identification (AFVID). With the large variety and detail of models in both scales, it is very easy to expand the AFVID aspects of the trainer. It is also easy to incorporate the trainer into other missions and training (a dismounted patrol to the OP site or expanding on establish OP procedures).

I am still refining the concept of the trainer and will keep everyone informed of its progress.



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